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09/891,701	06/26/2001	Yuichi Takamine	36856.516	1765

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EXAMINER

SUMMONS, BARBARA

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/891,701

Applicant(s)

Takamine

Examiner

Barbara Summons

Group Art Unit

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— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 (three) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☐ Responsive to communication(s) filed on \_\_\_\_\_
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-19 is/are pending in the application.
- ☐ Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☒ Claim(s) 1-8, 12-14 and 18 is/are allowed.
- ☒ Claim(s) 9-11, 15-17 and 19 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☒ The drawing(s) filed on 6/26/01 is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some\* ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

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## **DETAILED ACTION**

### ***Drawings***

1. Figures 22-25 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (see e.g. pg. 32, lns. 9-22). See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

3. Claim 3 is objected to because of the following informalities:

In claim 3, on the last line thereof, note that "at at least at one location" should be changed to --at least at one location-- (see e.g. the last two lines of claim 9). Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in

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section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or  
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 9-11 and 19 are rejected under 35 U.S.C. §§ 102(b) and 102(e) as being anticipated by Bauer et al. WO 00/25423 and U.S. 6,420,946 B1, respectively.

The following discussion will reference the U.S. English language document.

Fig. 1 of Bauer et al. discloses a dual mode surface acoustic wave (DMS) filter on which their inventive feature may be used (see e.g. col. 6, lns. 10-12). Therefore, Bauer et al. discloses a longitudinally connected resonator type SAW filter, comprising first, second and third IDTs (E1, A, E2) successively arranged on a piezoelectric substrate (see e.g. col. 1, lns. 50-53) along a propagation direction of a SAW. Although the filter shown has two unbalanced terminals, Bauer et al. discloses providing a balanced/unbalanced filter with balanced input or output terminals, e.g. balanced terminals at the first and third IDTs (see e.g. col. 6, lns. 53-63), in which the first and third IDTs inherently have opposite phases to the phase of the second IDT. Bauer et al. discloses that each of the IDTs includes a narrow-pitch portion (see Fig. 4b) at the junction portion between IDT structures.

Regarding claim 10, Bauer et al. discloses that the intercentral distance of two adjacent electrode fingers between adjacent IDTs are different between the opposite sides of the second central IDT. That is, the distance between the central IDT A and the two outer IDTs E1 and E2 are of different magnitude (see e.g. col. 3, lns. 32-35).

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Regarding claim 9, because the distance between the central second IDT and the first and third IDTs are different (ibid.), denoting a middle point of the second IDT as a center, the distance between two adjacent electrode fingers is different between opposite sides of the center, at least at one location being the outermost finger of the center IDT and the adjacent outermost fingers of the first and third IDTs.

Regarding claim 11, Bauer et al. discloses a filter meeting at least two of the features (a)-(d), because it meets features (c) and (d) which correspond to claims 9 and 10.

Regarding claim 19, Bauer et al. discloses its filter used in ESGM or PCS/PCN communication systems (see e.g. col. 3, ln. 49).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 15-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bauer et al. WO 00/25423 or U.S. 6,420,946 B1 taken in conjunction with Nakazawa et al. JP 11-097966 (cited by Applicant).

Bauer et al. discloses the invention as discussed above except for disclosing the second IDT divided into two portions.

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Nakazawa et al. discloses that it is known to provide a DMS filter with a split center transducer (see e.g. Fig. 1) to provide a balanced signal terminal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the DMS filter of Bauer et al. to have a split center IDT because such an obvious modification would have been a well known art recognized equivalent means for forming a balanced signal terminal as would have been known by one of ordinary skill and because Bauer et al. explicitly suggested using its narrow and constantly increasing finger pitch portions with SAW filters having balanced/unbalanced terminals (see col. 6, lns. 53-63) and is silent on how to form the balanced signal portion, thereby suggesting to one of ordinary skill that any well known method, such as splitting the center transducer, would have been usable therewith.

Alternatively, it would have been equally obvious to one of ordinary skill in the art at the time the invention was made to have modified the DMS filter of Nakazawa et al. (Fig. 1) with a split center transducer and unbalanced terminals at the first and third IDTs, such that it would have utilized the narrow constantly increasing finger pitch portion in adjacent IDTs of Bauer et al. because Bauer et al. explicitly suggested using its finger structure with such filters (ibid.), and because the use of such a finger structure would have provided the benefits of reduced scattering losses between the IDT structures and better transmission response as explicitly suggested by Bauer et al. (see col. 6, lns. 10-24).

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*Allowable Subject Matter*

8. Claims 1-8, 12-14 and 18 are allowable over the prior art of record.
9. The following is a statement of reasons for the indication of allowable subject matter:
- The prior art of record does not disclose or fairly suggest a longitudinally coupled resonator type SAW filter having each of the specifically recited combinations of features and connections.

*Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
- Tada U.S. 5,994,980 discloses longitudinally coupled resonator type SAW filters connected in series and parallel to form balanced and unbalanced terminals.
- Dai et al. U.S. 5,896,071 (Figs. 9 and 10) and Hode et al. U.S. 5,475,348 (Figs. 6 and 12) disclose other types of SAW resonator filters with IDTs connected in series and parallel to form balanced/unbalanced terminals.
11. Any inquiry concerning this communication should be directed to Barbara Summons at telephone number (703) 308-4947, FAX no. (703) 308-7724, receptionist's no. (703) 308-0956.



Barbara Summons  
Patent Examiner  
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bs  
October 15, 2002